

Removal of chlorinated solvents by micro-sized oil emulsion flushing

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Column experiments were conducted to investigate the feasibility of flushing using silicone oil-based emulsion for the removal of chlorinated solvents, including trichloroethylene (TCE), perchloroethylene (PCE) and 1,2-dichlorobenzene (DCB). Results of one-dimensional column studies indicated that aqueous solubility and sorption ability of contaminants were important in flushing performance. The competitive inhibition in the mixtures of TCE and PCE was not observed. The addition of surfactants below their critical micelle concentration did not affect the removal of chlorinated solvents, however the initial mass transfer between contaminants and emulsion was enhanced. The results of this study show that flushing using oil-based emulsion can be applied to treat the chlorinated solvents.